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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/380,682	10/19/1999	DANUTA EWA IRENA MOSSAKOWSKA	88362/107	2932

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EXAMINER	
BRANNOCK, MICHAEL T	
ART UNIT	**PAPER NUMBER**
1646	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/380,682	Applicant(s) Mossakowska
	Examiner Michael Brannock, Ph.D	Art Unit 1646

-- Th MAILING DATE of this communication app ars on th cov r sheet with th correspond nce address --

Period for R ply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Aug 1, 2002*

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *28-51* is/are pending in the applica

4a) Of the above, claim(s) *30-41, 44-48, and 51* is/are withdrawn from considera

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *28, 29, 42, 43, 49, and 50* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirem

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Detailed Action

1. The request filed on 8/1/02 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09380682 is acceptable and a CPA has been established. An action on the CPA follows.

2. Applicant is notified that the amendments set forth in Paper 25, 8/1/02, have been entered in full.

3. Claims 28-51 are pending.

4. Claims 30-41, 44-48 and 51 have been withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention, as discussed previously in Paper 14, 2/28/01.

5. Applicant is notified that any outstanding rejection to the claims that is not expressly maintained in this Office action has been withdrawn.

Maintained Rejections:

6. Claims 42, 43, 49 and 50 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, for the new reason below and for the reasons set forth in paragraph (d) of Paper 14, reiterated and discussed below:

Claims 42, 43 and 49 require "derivatives" of the recited polypeptide. The word "derivatives" renders the claims indefinite because the claims include amino acid sequences and

chemical modification not actually disclosed, thereby rendering the metes and bounds of the claim unascertainable. The specification provides some examples of derivatives, however, examples are not sufficient to define the bounds of a claim. The specification does not provide guidelines for measuring the degree of "derivation" nor can the metes and bounds of the term "derivative" be ascertained when read in light of the specification. One of ordinary skill in the art, would not be reasonably apprised of the metes and bounds of the invention.

Applicant argues that certain "recitations" in the claims define the derivatives as comprising SCR polypeptides and membrane binding elements; thus, applicant argues that the skilled person would know the identity and make-up of the constituents of the derivatives and therefore would immediately understand what the recited derivative is. This argument has been fully considered but not deemed persuasive for the reasons of record. The term "derivative" is a relative term; the degree of derivation determines the bounds of the claim that applicant is seeking protection for. As the specification has not set forth how this degree is to be measured and nor has the specification set any bounds within this continuum of degree - the artisan cannot reasonably know whether or not he or she is in possession of a product encompassed by the claims.

7. Claim 43 stands rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one

skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, as set forth previously and reiterated below.

The specification discloses a polypeptide of SEQ ID NO: 1, yet the claim encompasses polypeptide derivatives not described in the specification, i.e. those comprising membrane binding sequences identified through screening of random chemical libraries. None of these sequences meet the written description provision of 35 U.S.C. 112, first paragraph. Although one of skill in the art would reasonably predict that these sequences exist, one would not be able make useful predictions as to the positions or identities of those sequences based on the information disclosed in the specification.

With the exception of the of the polypeptide of SEQ ID NO: 1, the skilled artisan cannot envision the detailed chemical structure of the encompassed variants. Therefore, only the polypeptide of SEQ ID NO: 1, and polypeptides derivatives thereof comprising membrane binding elements taught in the specification, but not the full breadth of the claims meet the written description provision of 35 U.S.C. §112, first paragraph.

Applicant's arguments appear to address an enablement rejection. These arguments are unpersuasive because the rejection is based on the lack of an adequate written description of the claimed invention such that one skilled in the art would understand that Applicant was in possession of the claimed invention. There appears to be no description of any polypeptides comprising membrane binding sequences identified through screening of random chemical libraries, as is required by the claim.

8. Claims 28, 29, and 50 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No: 5545619 in view of Hourcade et al., J. Biol. Chem. 265(2)974-980, 1990, as set forth in item 9 of Paper 14, and reiterated below.

U.S. Patent No: 5545619 teaches a soluble polypeptide (CR1) comprising one to four short consensus repeats of the long homologous repeat A (LHR-A) and related polypeptides termed RCA polypeptides (see col 6), methods of producing mutations is said polypeptides (see col 7), and pharmaceutical compositions containing therapeutically effective amounts of same (see col. 9). By way of reference to Hourcade et al., U.S. Patent No: 5545619 discloses that amino acid sequences having the mutations recited in the instant claims are encompassed by the invention (see col. 6, lines 6-15). These mutations are disclosed by Hourcade et al., (see Figure 3), as pointed to by U.S. Patent No: 5545619. Claim 42 also requires that the polypeptide derivative comprises at least two heterologous membrane binding elements with low membrane affinity, covalently associated with the polypeptide, wherein the elements are capable of interacting independently and with thermodynamic additivity with the components of cellular membranes exposed to extracelluar fluids. The instant specification states that preferred membrane binding elements are basic amino acid sequences (see the bottom of page 9). The amino acid sequence taught by Hourcade et al. provides for at least 8 heterologous basic amino acids (arginine and lysine) relative to CR1 (see Figure 3 of Hourcade et al.).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, with reasonable expectation of success, to produce a polypeptide having the amino acid sequence taught by Hourcade et al. when practicing the invention disclosed in U.S. Patent No: 5545619. The motivation to do so was provided in U.S. Patent No: 5545619 wherein it was stated that the term "RCA proteins" refers to that taught by Hourcade et al. (see col. 6, lines 6-15), and that such proteins are useful in therapeutic and prophylactic contexts (see the last paragraph of col. 8).

Applicant argues that the RCA proteins analogs which comprise CR1-4 analogs are distinct from SCR (Example 2). And that the '619 patent provides no disclosure of soluble proteins that comprise SCR3. This argument has been fully considered but not deemed persuasive. The examiner does not understand the reasoning behind Applicant's arguments and points again to column 6 of the '619 patent wherein SCRs, including SCR 3 are discussed.

Applicant argues that the brief passage contained in col 7 of the '619 patent does not teach or suggest the particular set of possible amino acid substitution recited in the claims. This argument has been fully considered but not deemed persuasive. As set for above, it is the by way of reference to Hourcade et al. that U.S. Patent No: 5545619 discloses that amino acid sequences having the mutations recited in the instant claims (see col. 6, lines 6-15).

Applicant argues that Hourcade points to no usefulness of the CR1-like sequences. This argument has been fully considered but not deemed persuasive. As discussed above, it is the '619 patent that directs the artisan to the sequences provided by Hourcade.

9. Claims 42, 43 and 49 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No: 5545619 in view of Hourcade et al., J. Biol. Chem. 265(2)974-980, 1990, as applied to claims 28, 29, and 50 above, and in further view of Clissold et al., Eur. J. Immunol., 23(2346-2352)1993 and U.S. Patent No: 5936092, as set forth previously in item 10 of Paper 14. As set forth previously, claims 42, 43 and 49 contain the elements discussed above regarding claims 28, 29 and 50, yet claims 42, 43 and 49 also recite that the polypeptide comprise at least two heterologous membrane binding elements consisting of fatty acid derivatives. Claim 49 also requires that the process of constructing the polypeptide include recovering the polypeptide and, thereafter, post-transnationally modifying the polypeptide to chemically introduce the membrane binding elements.

Clissold et al. teach that the addition of a membrane binding element (glycosyl-phosphatidylinositol, GPI) to soluble CR1 increases the effectiveness of CR1 at protecting cells from complement mediated damage (see the abstract). Thus, Clissold et al. teach the concept that membrane binding elements increase the effectiveness of CR1. In the experiments of Clissold et al., there is only a single membrane binding element, and that element was added to CR1 during the expression of the polypeptide and not after recovery, as required by claim 49. However, the conjugation of fatty acid molecules to proteins for use in directing the proteins to the membrane of cells is well known in the art. U.S. Patent No: 5936092 discloses methods of conjugating fatty acid moieties to polypeptides for after the polypeptides have been expressed and recovered (see, for example, col. 10)

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to post-transnationally modify a polypeptide, said polypeptide being taught by Patent No: 5545619 in view of Hourcade et al., as discussed above, with membrane binding elements using the methods disclosed by U.S. Patent No: 5936092. The motivation to do so was provided by Clissold et al. who teach the concept that membrane binding elements increase the effectiveness of CR1.

Applicants arguments are based on the applicability of U.S. Patent No: 5545619 in view of Hourcade et al. have been fully addressed above. Applicant additionally argues that Clissold teach away from a soluble protein because Clissold teaches a membrane binding element which is the antithesis of solubility. This argument has been fully considered but not deemed persuasive because the examiner does not understand the argument. The instant claims are directed to soluble proteins with membrane binding elements. One of skilled in the art would therefore expect that the proteins would be soluble until they bound to a membrane. Upon binding to the membrane, they would not be in solution. This is the same principle taught by Clissold, as discussed above.

Conclusion

10. No claims are allowable.

11. This is CPA of applicant's earlier Application No. 09380682. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Brannock, Ph.D., whose telephone number is (703) 306-5876. The examiner can normally be reached on Mondays through Fridays from 8:00 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler, Ph.D., can be reached at (703) 308-6564.

Official papers filed by fax should be directed to (703) 308-4242. Faxed draft or informal communications with the examiner should be directed to (703) 308-0294.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

MB

October 17, 2002

YVONNE EYLER, PH.D
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600